Author Index to Volume 19

References with (L) are to Letters to the Editor.

Akeley, Edward S. (see Feuer, Paula)—39

Alexander, Leroy. Geometrical factors affecting the contours of x-ray spectrometer maxima. I. Factors causing asymmetry—1068

——, **Harold P. Klug, and Elizabeth Kummer.** Statistical factors affecting the intensity of x-rays diffracted by crystalline powders—742

Anderson, R. B. and P. H. Emmett. Measurement of carbon black particles by the electron microscope and low temperature nitrogen adsorption isotherms—367

Anderson, Robert A. (see Gilbarg, David)—127

Asp, E. T. (see Decker, B. F.)—388

Auld, Mary Jane. Temperature gradients for convection in well models—218(L)

Avery, W. H. and J. R. Morrison. Errata: Infra-red spectra of hydrocarbons. II. Analysis of octane mixtures by the use of infra-red spectra obtained at low temperatures —472

Axilrod, B. M. and J. J. Lamb. Tensile properties of rolled silver chloride—213

Badger, Richard M. (see Doyle, George J.)—373

Barker, C. B. (see Riblet, H. J.)—63

Barss, W. M. (see Yearian, H. J.)—700

Barton, H. M. (see Dunaway, R. E.)—799 (L)

Beams, J. W. (see Lapsley, A. C.)—111 (L)

Beck, F. J. and J. M. Kelly. Magnetization in perpendicularly superposed direct and alternating fields—551

Beck, Paul A. Effect of recrystallized grain size on grain growth—507 (L)

Belevitch, Vitold. Transmission losses in $2n$-terminal networks—636

Benedikt, E. T. On the flow of a perfect fluid between two plates from a circular inlet channel—1094 (L)

Birchenall, C. Ernest and Robert F. Mehl. Self-diffusion in iron—217 (L)

Birkhoff, Garrett, Duncan P. MacDougall, Emerson M. Pugh, and Sir Geoffrey Taylor. Explosives with lined cavities—563

Birnbaum, M. (see dePackh, D. C.)—795 (L)

Blackburn, Wayne E. Temperature coefficient of electrical resistivity for crystalline selenium containing various percentages of bromine—51

Bleakney, Walker (see Stoner, Richard G.)—670, 1129

Bond, W. L. Alignment chart giving the polarization correction of equi-inclination Weissenberg photographic intensities—82

—— Simple procedure for the making of alignment charts —83

Bouwkamp, C. J. and N. G. de Bruijn. Errata: The electrostatic field of a point charge inside a cylinder, in connection with wave-guide theory—105

Bridgman, P. W. Large plastic flow and the collapse of hollow cylinders—302

Brillouin, L. Wave guides for slow waves—1023

Brooks, Hamilton (see Epstein, Benjamin)—544

Brown, George W. (see Goldberg, Edwin A.)—339

Buerger, M. J. Book review—112, 218

Campbell, William L. (see Dunn, Cecil G.)—605

Cassen, B. and J. Stanton. Decay of shock waves—803

Christ, C. L. Erratum: Remarks on some recently developed devices for summing Fourier series for crystal structure analysis—225

Chu, L. J. Physical limitations of omnidirectional antennas —1163

Clark, C. L., R. A. Peck, Jr., and W. F. Hollander. Homing pigeon in electromagnetic fields—1183 (L)

Coffin, L. F., Jr. (see MacGregor, C. W.)—291

Cooley, J. P. (see Wantuch, E.)—1092 (L)

Copeland, L. E. Thermodynamics of a strained elastomer. II. Compressibility—445

—— **and M. Mooney.** Thermodynamics of a strained elastomer. III. The thermal coefficient of modulus and the statistical theory of elasticity—450

Cross, W. G. (see Deacon, Beatrice M.)—704

Crouch, G. E., Jr. (see Surber, W. H., Jr.)—1130

Crout, Prescott D. An extension of LaGrange's equations to electromagnetic field problems—1007

Cullen, A. B., Jr. and J. H. Greig. Resonant cavity linear accelerator—47

Cunningham, W. J. Simple relations for calculating certain transient responses—251

Davidson, W. L. and I. G. Geib. Effects of pile bombardment on uncured elastomers—427

Davis, Leverett, Jr. Remarks on: "The physical basis of bird navigation"307 (L)

Deacon, Beatrice M., S. G. Ellis, W. G. Cross, and R. S. Sennett. Some observations on the Formvar replica method, with a note on glass surfaces—704

de Bruijn, N. G. (see Bouwkamp, C. J.)—105

Decker, B. F., E. T. Asp, and D. Harker. Preferred orientation determination using a Geiger counter x-ray diffraction goniometer—388

dePackh, D. C. and M. Birnbaum. Prebunching: a method controlling synchrotron radial oscillation amplitudes—795 (L)

de Quevedo, José L. García and William V. Smith. Frequency stabilization of microwave oscillators by spectrum lines. II—831

Doyle, George J. and Richard M. Badger. Visco-elastic behavior of a highly plasticized nitrocellulose in compression under constant load—373

Dunaway, R. E. and H. M. Barton. Notes on electron diffraction with the universal electron microscope—799 (L)

Dunn, Cecil G., William L. Campbell, Harvey Fram, and Ardelia Hutchins. Biological and photo-chemical effects of high energy, electrostatically produced Roentgen rays and cathode rays—605

Elenbaas, W. The dissipation of heat by free convection from vertical and horizontal cylinders—1148
Ellis, S. G. (see Deacon, Beatrice M.)—704
Elmore, W. C. Transient response of damped linear networks with particular regard to wideband amplifiers—55
Emmett, P. H. (see Anderson, R. B.)—367
Epstein, Benjamin. Statistical aspects of fracture problems—140
—— **and Hamilton Brooks.** Theory of extreme values and its implications in the study of the dielectric strength of paper capacitors—544

Fairbanks, A. F. (see McCormick, W. W.)—221
Farrant, J. L. and A. J. Hodge. Interferometric method for the calibration of electron microscope magnification—840
Feuer, Paula and Edward S. Akeley. Scattering of electromagnetic radiation by a thin circular ring in a circular wave guide—39
Fisher, J. C. (see MacGregor, C. W.)—291
——, **J. H. Hollomon, and D. Turnbull.** Nucleation—775
Fisher, John C. The fracture of liquids—1062
Fowler, Franklin H., Jr. Statistical aspects of fracture problems—1092 (L)
Fram, Harvey (see Dunn, Cecil G.)—605
Frissel, H. F. (see Kammer, E. W.)—265
Fuchs. Henry O. Gyrograms—796 (L)
Fullam, Ernest F. and Robert H. Savage. Carbon film formation and commutator brush-wear as revealed by the electron microscope—654

Gardner, C. S., H. F. Ludloff, and F. Reiche. Drag of an airfoil in accelerated, supersonic flight—1179 (L)
Gardner, Irvine C. Range-finder testing laboratory—721
—— Testing of range finders—729
Gehman, S. D. Creep, recovery, and permanent set for GR-S and Hevea—456
Geib, I. G. (see Davidson, W. L.)—427
Geisler, A. H., J. K. Hill, and J. B. Newkirk. Divergent beam x-ray photography with standard diffraction equipment—1041
Gemant, Andrew. Measurement by radioactive tracers of diffusion in liquids—1160
Germer, L. H. (see Lander, J. J.)—910
Geschwind, S. (see Townes, C. H.)—795 (L)
Geyer, Charles J., Jr., C. H. Reichardt, and George Halsey. Theory of commercial yarn testing—464
Gibbs, Norman E. (see Pike, Eugene W.)—106
Gilbarg, David and Robert A. Anderson. Influence of atmosphere pressure on the phenomena accompanying the entry of spheres into water—127
Glasser, Otto J. and John D. Kraus. Measured impedances of helical beam antennas—193
Goldberg, Edwin A. and George W. Brown. Electronic simultaneous equation solver—339
Gordon, W. E. (see Straiton, A. W.)—524
Greig, J. H. (see Cullen, A. B., Jr.)—47
—— (see Wantuch, E.)—1092 (L)
Grimminger, G. Probability that a meteorite will hit or penetrate a body situated in the vicinity of the earth—947
Gross, B. On creep and relaxation. II—257
Gunn, Ross. Electric field intensity inside of natural clouds—481

Hahn, W. C. (see Lawton, Elliott J.)—642
Hall, C. E. Dark-field electron microscopy. I. Studies of crystalline substances in dark-field—198
—— Dark-field electron microscopy—271
Hallen, Erik. Properties of a long antenna—1140
Halsey, George (see Geyer, Charles J., Jr.)—464
Hamm, F. A. and Earl Van Norman. Transformations in organic pigments—1097
Hanley, T. E. Spectral emissivity and electron emission constants of thoria cathodes—583
Hansen, W. W. and R. F. Post. On the measurement of cavity impedance—1059
Harker, D. (see Decker, B. F.)—388
Harris, Louis, David Jeffries, and Benjamin M. Siegel. Electron microscope study of gold smoke deposits—791
—— **and Benjamin M. Siegel.** Method for the evaporation of alloys—739
Henry, Hugh F. Velocity of the anode spark in copper sulfate solutions under application of impulsive potential—988
Hermans, P. H. and A. Weidinger. Quantitative x-ray investigations on the crystallinity of cellulose fibers. A background analysis—491
Hershberger, W. D. Minimum detectable absorption in microwave spectroscopy and an analysis of the Stark modulation method—411
Hicks, Bruce L., Donald J. Montgomery, and Robert H. Wasserman. Erratum: On the one-dimensional theory of steady compressible fluid flow in ducts with friction and heat addition—523
Hill, Edward L. Book review—114
Hill, J. K. (see Geisler, A. H.)—1041
Hillier, James. On the investigation of specimen contamination in the electron microscope—226
—— (see Ramberg, E. G.)—678
Hodge, A. J. (see Farrant, J. L.)—840
Hok, Gunnar. Response of linear resonant systems to excitation of a frequency varying linearly with time—242; erratum—623
Hollander, W. F. (see Clarke, C. L.)—1183 (L)
Hollenberg, A. V., N. Kroll, and S. Millman. Rising sun magnetrons with large numbers of cavities—624
Hollomon, J. H. (see Fisher, J. C.)—775
Holm, Ragnar. Calculation of the temperature development in a contact heated in the contact surface, and application to the problem of the temperature rise in a sliding contact—361
Horton, C. W. (see Watson, R. B.)—661, 836
Hutchins, Ardelia (see Dunn, Cecil G.)—605

Iberall, Arthur S. The effective "gamma" for isentropic expansions of real gases—997

Jaffee, Robert I. Magnetic properties of ordered nickel-manganese alloys—867
Jeffries, David (see Harris, Louis)—791
Jelatis, J. G. Measurements of dielectric constant and dipole moment of gases by the beat-frequency method—419
Jen, C. K. Method for measuring the complex dielectric constant of gases at microwave frequencies by using a resonant cavity—649

Kammer, E. W., T. E. Pardue, and H. F. Frissel. Determination of the elastic constants for beta-quartz—265
Kê, T'ing-Sui. Viscous slip along grain boundaries and diffusion of zinc in alpha-brass—285
Kelly, J. M. (see Beck, F. J.)—551
Kelso, J. M. Note on the phase difference between two waves reflected from the ionosphere—590 (L)
Keogh, C. T. and A. H. Weber. Electron diffraction study of particle size in thin Bi films deposited by evaporation in vacuum—1077
King, Ronold (see Papas, C. H.)—808
Kirkwood, J. G. and R. J. Seeger. Surface waves from an underwater explosion—346
Klug, Harold P. (see Alexander, Leroy)—742
Klute, C. H. Some remarks concerning a proposed method for testing the brittleness of elastomers—1093 (L)
Koehler, J. S. Electronic differential analyzer—148
Kofoid, M. J. Observations on arc discharges at low pressures—399
Kraus, John D. (see Glasser, Otto J.)—193
—— **and J. Claude Williamson.** Characteristics of helical antennas radiating in the axial mode—87
Kroll, N. (see Hollenberg, A. V.)—624
Kroll, Norman M. and Willis E. Lamb, Jr. Resonant modes of the rising sun and other unstrapped magnetron anode blocks—166
Kuczynski, G. C. New method of measuring diffusion coefficient in solids with radioactive tracers—308 (L)
—— **and J. T. Norton.** Young's modulus and strain coefficient of resistivity of some bismuth rich alloys—683
Kummer, Elizabeth (see Alexander, Leroy)—742
Kunkel, Wulf B. Magnitude and character of errors produced by shape factors in Stokes' law estimates of particle radius—1056
—— Growth of charged particles in clouds—1053

LaGrone, A. H. (see Straiton, A. W.)—524
Lamb, J. J. (see Axilrod, B. M.)—213
Lamb, Willis E., Jr. (see Kroll, Norman M.)—166
Lander, J. J. Use of an electron diffraction camera as an ultraoscilloscope and suggested application to contact erosion—1128
—— **and L. H. Germer.** Bridge erosion of electrical contacts. Part I—910
Lapsley, A. C., L. B. Snoddy, and J. W. Beams. Use of a cavity oscillator for a Kerr electro-optical light shutter —111 (L)
Lawton, Elliott J. Choice of operating mode for standing wave type linear accelerators for electrons—534
—— **and W. C. Hahn.** Experimental results on standing wave type linear accelerators for electrons—642
Ling, Chih-Bing. On the stresses in a plate containing two circular holes—77
—— Stresses in a plate containing an overlapped circular hole—405
Loeb, Leonard B. Recent developments in analysis of the mechanisms of positive and negative coronas in air—882
—— **and Robert A. Wijsman.** Theortical criterion for streamer advance in an electrical field—797 (L)
Ludloff, H. F. (see Gardner, C. S.)—1179 (L)
Lutton, E. S. (see Stewart, C. B.)—507 (L)
Lyons, W. James and Irven B. Prettyman. Method for the absolute measurement of dynamic properties of linear structures at sonic frequencies—473

MacDougall, Duncan P. (see Birkhoff, Garrett)—563
MacGregor, C. W., L. F. Coffin, Jr., and J. C. Fisher. Plastic flow of thick-walled tubes with large strains—291
Mack, Charles. Plastic flow, creep, and stress relaxation. Part IV. Anomalous flow as an order-disorder transition —1082
Madansky, L. (see McCormick, W. W.)—221
Mahla, E. M. and N. A. Nielson. Oxide replica technique for the electron microscope examination of stainless steel and high nickel alloys—378
Manning, Laurence A. Theory of the radio detection of meteors—689
Mark, Herman (see Singer, Seymour J.)—97
Marton, L. Electron optical "Schlieren" effect—687 (L)
—— Electron optical observation of magnetic fields—863 (L)
Mason, W. P. and H. J. McSkimin. Energy losses of sound waves in metals due to scattering and diffusion—940
May, Albert and Jean C. Woodhull. Drag coefficients of steel spheres entering water vertically—1109
McCormick, W. W., L. Madansky, and A. F. Fairbanks. Microflash unit for ballistic photography—221
McKinney, C. M. (see Watson, R. B.)—871
McSkimin, H. J. (see Mason, W. P.)—940
Mehl, Robert F. (see Birchenall, C. Ernest)—217 (L)
Middleton, David. Spurious signals caused by noise in triggered circuits—817
Millman, S. (see Hollenberg, A. V.)—624
—— **and A. T. Nordsieck.** Rising sun magnetron—156
Minorsky, N. Self-excited mechanical oscillations—332
Minter, Clarke C. Note on the anomalous physical properties of processed atmospheric nitrogen—217 (L)
Mirabelli, Eugene. Book review—113
Monk, G. W. Apparatus for weighing in vacuum—485
Montgomery, Donald J. (see Hicks, Bruce L.)—523
Mooney, M. Thermodynamics of a strained elastomer. I. General analysis—434
—— (see Copeland, L. E.)—450
Morgan, Karl Z. Shipping of radio-isotopes—593
Morrison, J. R. (see Avery, W. H.)—472
Morrison, Philip. Physics in 1947—311
Moses, H. E. Head-on collision of a shock wave and a rarefaction wave in one dimension—383

Mueller, Robert Emmett. Analogy between isopachic stress lines and equipotential lines—590 (L)
Munk, Max M. and Robert C. Prim. On the canonical form of the equations of steady motion of a perfect gas—957

Newkirk, J. B. (see Geisler, A. H.)—1041
Nielson, N. A. (see Mahla, E. M.)—378
Nolle, A. W. Methods for measuring dynamic mechanical properties of rubber-like materials—753
Nordsieck, A. T. (see Millman, S.)—156
Norton, J. T. (see Kuczynski, G. C.)—683
Norton, John T. A technique for quantitative determination of texture of sheet metals—1176

Okress, E. C. Erratum: A magnetron resonator system—338
Oliner, A. A. Remarks on slow waves in cylindrical guides—109 (L)
Oosterkamp, W. J. Calculation of the temperature development in a contact heated in the contact surface, and application to the problem of the temperature in a sliding contact—1180 (L)

Pachner, Jaroslav. Theory of the positive column in an annular discharge tube—1072
Papas, C. H. and Ronold King. Surface currents on a conducting sphere excited by a dipole—808
Papet, Robert M. Remarks on "The efficiency of thermoelectric generators"—1180 (L)
Papp, G. and K. Sasvári. The application of electron multiplier tubes in the measurement of x-ray beam intensities and in the determination of crystal structure—1182 (L)
Pardue, T. E. (see Kammer, E. W.)—265
Peck, R. A., Jr. (see Clarke, C. L.)—1183 (L)
Pekeris, C. L. Effect of ground constants on the characteristic values of the normal modes in non-standard propagation of microwaves—102
Penner, S. S. Mass emissivity of powder gases in solid fuel rockets—278
—— Effect of radiation on the rate of burning of solid fuel rocket propellants—392
—— Qualitative experimental verification of the change of burning rate of rocket powders with radiation path length—511
Pierce, J. R. Possible fluctuations in electron streams due to ions—231
Piispanen, Väinö. Theory of formation of metal chips—876
Pike, Eugene W. and Norman E. Gibbs. Study on anaeroid capsules—106
Pipes, Louis A. Analysis of retarded control systems—617
Plesset, Milton S. and Philip A. Shaffer, Jr. Cavity drag in two and three dimensions—934
Post, R. F. (see Hansen, W. W.)—1059
Powell, R. W. Bidwell's intercept relation and the thermal conductivity of liquid metals—995
Prager, W. Theory of plastic flow *versus* theory of plastic deformation—540
Prettyman, Irven B. (see Lyons, W. James)—473
Prim, Robert C. (see Munk, Max M.)—957
Pugh, Emerson M. (see Birkhoff, Garrett)—563

Ramberg, E. C. and J. Hillier. Chromatic aberration and resolving power in electron microscopy—678
Reichardt, C. H. (see Geyer, Charles J., Jr.)—464
Reiche, F. (see Gardner, C. S.)—1179 (L)
Reissner, E. Book review—114
Riblet, H. J. and C. B. Barker. General divergence formula—63
Rinehart, R. F. Solution of the problem of rapid scanning for radar antennae—860
Robertson, W. D. and H. H. Uhlig. Observation of corrosion cracking without stress—864 (L)
Robinson, Lawrence Baylor. Application of the Laplace transform in the solution of linear integral equations—237
Rohrbaugh, J. H. (see Wantuch, E.)—1092 (L)
Rojansky, V. Gyrograms for simple harmonic systems subjected to external forces—297
Roth, W. Scattering of ultrasonic radiation in polycrystalline metals—901
Rothstein, Jerome. On the possibility of Hg type arcs with hot refractory cathodes—1181 (L)

Sasaki, Nobuji. An ion microscope with a transverse magnetic field—1050
Sasvári, K. (see Papp, G.)—1182 (L)
Savage, Robert H. Graphite lubrication—1
—— (see Fullam, Ernest F.)—654
Schelkunoff, S. A. Book review—115
Seeger, R. J. (see Kirkwood, J. G.)—346
Seitz. Frederick. The contribution of modern physics to metallurgy—973
Sennett, R. S. (see Deacon, Beatrice M.)—704
Shaffer, Philip A., Jr. (see Plesset, Milton S.)—934
Shankland, Robert S. Book review—800
Sheppard, C. W. Theory of the study of transfers within a multi-compartment system using isotopic tracers—70
Shmoys, J. Note on reflection from dielectric structures in wave guide—797 (L)
—— (see Wantuch, E.)—1092 (L)
Sidhu, S. S. Transmission of monoenergetic slow neutrons through solid solutions and mechanical mixtures of TiC and WC—639
Siegel, Benjamin M. (see Harris, Louis)—739, 791
Singer, Seymour J. and Herman Mark. On the structure of cellulose acetate molecules in acetone solution—97
Skellett, A. M. Palletron, a new electron resonator and its proposed application to the generation of potentials in the million-volt range—187
Slepian, Joseph. Physical basis of bird navigation—306 (L)
Smith, P. D. P. Conical dipole of wide angle—11
Smith, William V. (see De Quevedo, José L. García)—831
Snoddy, L. B. (see Lapsley, A. C.)—111 (L)
Spedding, F. H. Book review—115
Stanton, J. (see Cassen, B.)—803
Stevenson, A. F. Theory of slots in rectangular wave guides—24

Stewart, C. B. and E. S. Lutton. Convenient methods for obtaining d/n values from x-ray diffraction patterns—507 (L)
Stoffregen, W. Ionosphere reflections recorded mechanically by means of a repetition frequency converter—487
Stoner, Richard G. and Walker Bleakney. Attenuation of spherical shock waves in air—670; erratum—1129
Straiton, A. W., W. E. Gordon, and A. H. LaGrone. Method of determining the angle of arrival—524
Surber, W. H., Jr. Universal curves for dielectric-filled wave guides and microwave dielectric measurement methods for liquids—514
—— **and G. E. Crouch, Jr.** Dielectric measurement methods for solids at microwave frequencies—1130

Tai, C. T. On the theory of biconical antennas—1155
Taylor, Sir Geoffrey (see Birkhoff, Garrett)—563
Thomas, D. E. Measurement of stress by means of x-rays—190
Townes, C. H. and S. Geschwind. Limiting sensitivity of a microwave spestrometer—795 (L)
Trillat, Jean-Jacques. Electronic radiography and microradiography—844
Trump, J. G. and R. J. Van de Graaff. Irradiation of biological materials by high energy Roentgen rays and cathode rays—599
Turnbull, D. (see Fisher, J. C.)—775

Uhlig, H. H. (see Robertson, W. D.)—864 (L)

Vand, V. Temperature-controlled Frevel focusing x-ray powder camera—852
Van de Graaff, R. J. (see Trump, J. G.)—599
van der Ziel, A. On the mixing properties of non-linear condensers—999
Van Norman, Earl (see Hamm, F. A.)—1097
Varian, Russell H. Remarks on: "A preliminary study of a physical basis of bird navigation"—306 (L)
Victoreen, John A. Absorption of incident quanta by atoms as defined by the mass photoelectric absorption coefficient and the mass scattering coefficient—855
Vonnegut, Bernard. Production of ice crystals by the adiabatic expansion of gas—959 (L)

Wagner, Carl. Heat transfer from a rotating disk to ambient air—837
Walsh, T. J. Book review—113
Wannier, Gregory H. An observation on heat sources placed at random on a surface—1020
Wantuch, E., J. H. Rohrbaugh, J. P. Cooley, J. H. Greig, and J. Shmoys. Transmission properties of materials in the millimeter wave region—1092 (L)
Wasserman, Robert H. (see Hicks, Bruce L.)—523
Watson, John H. L. Specimen contamination in electron microscopes—110 (L)
—— Pseudostructures in electron microscope specimens—713
Watson, R. B. and C. W. Horton. Radiation patterns of dielectric rods—experiment and theory—661; on the calculation of radiation patterns of dielectric rods—836
—— **and C. M. McKinney.** Gains and effective areas of horn antennas—871
Weber, A. H. (see Keogh, C. T.)—1077
Weidinger, A. (see Hermans, P. H.)—491
Weinbaum, Sidney. Alloying of metal powders by diffusion—897
Wijsman, Robert A. (see Loeb, Leonard B.)—797 (L)
Williamson, J. Claude (see Kraus, John D.)—87
Wood, John K. Analytical discussion of the construction of pole figures—784
Woodhull, Jean C. (see May, Albert)—1109
Worrell, Francis T. Twinning in tetragonal alloys of copper and manganese—929; erratum—1154

Yearian, H. J. and W. M. Barss. Aids to analysis of patterns obtained in the diffraction of electrons by gases—700
Yuan, L. C. Homing and navigational courses of automatic target-seeking devices—1122

Subject Index to Volume 19

References with (L) are to Letters to the Editor.

Absorption of incident quanta by atoms as defined by the mass photoelectric absorption coefficient and the mass scattering coefficient, John A. Victoreen—855

Accelerator, Resonant cavity linear accelerator, A. B. Cullen, Jr. and J. H. Greig—47

Accelerators for electrons, standing wave type linear, Choice of operating mode for, Elliott J. Lawton—534

Accelerators, Experimental results on standing wave type linear accelerators for electrons, Elliott J. Lawton and W. C. Hahn—642

Aids to analysis of patterns obtained in the diffraction of electrons by gases, H. J. Yearian and W. M. Barss—700

Airfoil, Drag of an, in accelerated, supersonic flight, C. S. Gardner, H. F. Ludloff, and F. Reiche—1179 (L)

Alignment chart giving the polarization correction of equi-inclination Weissenberg photographic intensities, W. L. Bond—82

Alignment charts, Simple procedure for the making of, W. L. Bond—83

Alloying of metal powders by diffusion, Sidney Weinbaum —897

Alloys, Method for the evaporation of, Louis Harris and Benjamin M. Siegel—739

Alloys, tetragonal, of copper and manganese, Twinning in, Francis T. Worrell—929; erratum—1154

Alpha-brass, Viscous slip along grain boundaries and diffusion of zinc in, T'ing-Sui Kê—285

Amplifiers, wideband, Transient response of damped linear networks with particular regard to, W. C. Elmore—55

Anaeroid capsules, Study on, Eugene W. Pike and Norman E. Gibbs—106

Analogy between isopachic stress lines and equipotential lines, Robert Emmett Mueller—590 (L)

Analysis of retarded control systems, Louis A. Pipes—617

Analytical discussion of the construction of pole figures, John K. Wood—784

Analyzer, Electronic differential, J. S. Koehler—148

Angle of arrival, Method of determining, A. W. Straiton, W. E. Gordon, and A. H. LaGrone—524

Annular discharge tube, Theory of the positive column in, Jaroslav Pachner—1072

Anode spark, Velocity of the, in copper sulfate solutions under application of impulsive potential, Hugh F. Henry—988

Anomalous physical properties of processed atmospheric nitrogen, Clarke C. Minter—217 (L)

Antenna, long, Properties of a, Erik Hallen—1140

Antennas, biconical, Theory of, C. T. Tai—1155

Antennas, helical beam, Measured impedances of, Otto J. Glasser and John D. Kraus—193

Antennas, horn, Gains and effective areas of, R. B. Watson and C. M. McKinney—871

Antennas, omnidirectional, Physical limitations of, L. J. Chu—1163

Apparatus for weighing in vacuum, G. W. Monk—485

Application of electron multiplier tubes in the measurement of x-ray beam intensities and in the determination of crystal structure, G. Papp and K. Sasvári—1182 (L)

Application of the Laplace transform in the solution of linear integral equations, Lawrence Baylor Robinson —237

Arc discharges at low pressures, Observations on, M. J. Kofoid—399

Arcs, Possibility of Hg type arcs with hot refractory cathodes, Jerome Rothstein—1181 (L)

Atmosphere pressure, Influence of, on the phenomena accompanying the entry of spheres into water, David Gilbarg and Robert A. Anderson—127

Atoms, Absorption of incident quanta by atoms as defined by the mass photoelectric absorption coefficient and the mass scattering coefficient, John A. Victoreen—855

Attenuation of spherical shock waves in air, Richard G. Stoner and Walker Bleakney—670; erratum—1129

Ballistic photography, Microflash unit for, W. W. McCormick, L. Madansky, and A. F. Fairbanks—221

Beat-frequency method, Measurements of dielectric constant and dipole moment of gases by the, J. G. Jelatis —419

Beta-quartz, Determination of the elastic constants for, E. W. Kammer, T. E. Pardue, and H. F. Frissel—265

Bidwell's intercept relation and the thermal conductivity of liquid metals, R. W. Powell—995

Biological materials, Irradiation of, by high energy Roentgen rays and cathode rays, J. G. Trump and R. J. Van de Graaff—599

Biological and photo-chemical effects of high energy, electrostatically produced Roentgen rays and cathode rays, Cecil G. Dunn, William L. Campbell, Harvey Fram, and Ardelia Hutchins—605

Bird navigation, Physical basis of, Joseph Slepian—306 (L)

Bird navigation, Remarks on "The physical basis of," Leverett Davis, Jr.—307 (L)

Bird navigation, Remarks on "A preliminary study of a physical basis of," Russell H. Varian—306 (L)

Bismuth, Young's modulus and strain coefficient of resistivity of some bismuth rich alloys, G. C. Kuczynski and J. T. Norton—683

Bridge erosion of electrical contacts, Part I, J. J. Lander L. H. Germer—910

Brittleness of elastomers, Some remarks concerning a proposed method for testing the, C. H. Klute—1093 (L)

Bromine, Temperature coefficient of electrical resistivity for crystalline selenium containing various percentages of, Wayne E. Blackburn—51

Calculation of radiation patterns of dielectric rods, R. B. Watson and C. W. Horton—836

Calculation of the temperature development in a contact heated in the contact surface, and application to the

problem of the temperature rise in a sliding contact, Ragnar Holm—361; W. J. Oosterkamp—1180 (L)
Camera, electron diffraction, Use of, as an ultraoscilloscope and suggested application to contact erosion, J. J. Lander—1128
Camera, Temperature-controlled Frevel focusing x-ray powder camera, V. Vand—852
Canonical form of the equations of steady motion of a perfect gas, Max M. Munk and Robert C. Prim—957
Carbon black particles, Measurement of, by the electron microscope and low temperature nitrogen adsorption isotherms, R. B. Anderson and P. H. Emmett—367
Carbon film formation and commutator brush-wear as revealed by the electron microscope, Ernest F. Fullam and Robert H. Savage—654
Cathode rays, Biological and photo-chemical effects of high energy, electrostatically produced Roentgen rays and, Cecil G. Dunn, William L. Campbell, Harvey Fram, and Ardelia Hutchins—605
Cathode rays, Irradiation of biological materials by high energy Roentgen rays and, J. G. Trump and R. J. Van de Graaff—599
Cavities, lined, Explosives with, Garrett Birkhoff, Duncan P. MacDougall, Emerson M. Pugh, and Sir Geoffrey Taylor—563
Cavity drag in two and three dimensions, Milton S. Plesset and Philip A. Shaffer, Jr.—934
Cavity impedance, Measurement of, W. W. Hansen and R. F. Post—1059
Cavity, Method for measuring the complex dielectric constant of gases at microwave frequencies by using a resonant cavity, C. K. Jen—649
Cavity oscillator, Use of a, for a Kerr electro-optical light shutter, A. C. Lapsley, L. B. Snoddy, and J. W. Beams —111 (L)
Cellulose acetate molecules, Structure of, in acetone solution, Seymour J. Singer and Herman Mark—97
Cellulose fibers, crystallinity of, Quantitative x-ray investigations on. A background analysis, P. H. Hermans and A. Weidinger—491
Characteristics of helical antennas radiating in the axial mode, John D. Kraus and J. Claude Williamson—87
Choice of operating mode for standing wave type linear accelerators for electrons, Elliott J. Lawton—534
Chromatic aberration and resolving power in electron microscopy, E. G. Ramberg and J. Hillier—678
Circuits, triggered, Spurious signals caused by noise in, David Middleton—817
Clouds, Growth of charged particles in, Wulf Kunkel—1053
Clouds, natural, Electric field intensity inside of, Ross Gunn—481
Commutator brush-wear, Carbon film formation and, as revealed by the electron microscope, Ernest F. Fullam and Robert H. Savage—654
Condensers, non-linear, Mixing properties of, A. van der Ziel—999
Conical dipole of wide angle, P. D. P. Smith—11
Contact, sliding, Calculation of the temperature development in a contact heated in the contact surface, and application to the problem of the temperature rise in a, Ragnar Holm—361; W. J. Oosterkamp—1180 (L)
Contact surface, Calculation of the temperature development in a contact heated in the, and application to the problem of the temperature in a sliding contact, Ragnar Holm—361; W. J. Oosterkamp—1180 (L)
Contacts, electrical, Bridge erosion of, Part I, J. J. Lander and L. H. Germer—910
Contamination, Investigation of specimen contamination in the electron microscope, James Hillier—226
Contamination, Specimen, in electron microscopes, John H. L. Watson—110 (L)
Contribution of modern physics to metallurgy, Frederick Seitz—973
Control systems, retarded, Analysis of, Louis A. Pipes—617
Convection in well models, Temperature gradients for, Mary Jane Auld—218 (L)
Convenient methods for obtaining d/n values from x-ray diffraction patterns, C. B. Stewart and E. S. Lutton—507 (L)
Copper sulfate solutions, Velocity of the anode spark in, under application of impulsive potential, Hugh F. Henry—988
Copper, Twinning in tetragonal alloys of copper and manganese, Francis T. Worrell—929; erratum—1154
Coronas, Recent developments in analysis of the mechanisms of positive and negative coronas in air, Leonard B. Loeb—882
Corrosion cracking without stress, Observation of, W. D. Robertson and H. H. Uhlig—864 (L)
Creep, Plastic flow, creep, and stress relaxation. Part IV. Anomalous flow as an order-disorder transition, Charles Mack—1082
Creep, recovery, and permanent set for GR-S and Hevea, S. D. Gehman—456
Creep and relaxation. II. B. Gross—257
Crystal structure analysis, Remarks on some recently developed devices for summing Fourier series for, C. L. Christ—225 (erratum)
Crystal structure, Application of electron multiplier tubes in the measurement of x-ray beam intensities and in the determination of, G. Papp and K. Sasvári—1182 (L)
Crystalline powders, Statistical factors affecting the intensity of x-rays diffracted by, Leroy Alexander, Harold P. Klug, and Elizabeth Kummer—742
Crystalline substances, Studies of, in dark-field. Dark-field electron microscopy. I, C. E. Hall—198
Cylinders, Large plastic flow and the collapse of hollow cylinders, P. W. Bridgman—302

Dark-field electron microscopy, C. E. Hall—198, 271
Decay of shock waves, B. Cassen and J. Stanton—803
Determination of the elastic constants for beta-quartz, E. W. Kammer, T. E. Pardue, and H. F. Frissel—265
Dielectric measurement methods for solids at microwave frequencies, W. H. Surber, Jr. and G. E. Crouch, Jr.—1130
Dielectric rods, Calculation of radiation patterns of, R. B. Watson and C. W. Horton—836

Dielectric rods, Radiation patterns of—experiment and theory, R. B. Watson and C. W. Horton—661
Diffusion coefficient, New method of measuring, in solids with radioactive tracers, G. C. Kuczynski—308 (L)
Dipole, Conical, of wide angle, P. D. P. Smith—11
Dipole, Surface currents on a conducting sphere excited by a, C. H. Papas and Ronold King—808
Disk, Heat transfer from a rotating disk to ambient air, Carl Wagner—837
Dissipation of heat by free convection from vertical and horizontal cylinders, W. Elenbaas—1148
Divergent beam x-ray photography with standard diffraction equipment, A. H. Geisler, J. K. Hill, and J. B. Newkirk—1041
Drag of an airfoil in accelerated, supersonic flight, C. S. Gardner, H. F. Ludloff, and F. Reiche—1179 (L)
Drag coefficients of steel spheres entering water vertically, Albert May and Jean C. Woodhull—1109

Effect of ground constants on the characteristic values of the normal modes in non-standard propagation of microwaves, C. L. Pekeris—102
Effect of radiation on the rate of burning of solid fuel rocket propellants, S. S. Penner—392
Effect of recrystallized grain size on grain growth, Paul A. Beck—507 (L)
Effective "gamma" for isentropic expansions of real gases, Arthur S. Iberall—997
Effects of pile bombardment on uncured elastomers, W. L. Davidson and I. G. Geib—427
Elastic constants, Determination of, for beta-quartz, E. W. Kammer, T. E. Pardue, and H. F. Frissel—265
Elastomer, strained, Thermodynamics of. I. General analysis, M. Mooney—434; II. Compressibility, L. E. Copeland—445; III. The thermal coefficient of modulus and the statistical theory of elasticity, L. E. Copeland and M. Mooney—450
Elastomers, brittleness of, Some remarks concerning a proposed method for testing, C. H. Klute—1093 (L)
Elastomers, uncured, Effects of pile bombardment on, W. L. Davidson and I. G. Geib—427
Electric field intensity inside of natural clouds, Ross Gunn—481
Electromagnetic field problems, Extension of LaGrange's equations to, Prescott D. Crout—1007
Electromagnetic radiation, Scattering of, by a thin circular ring in a circular wave guide, Paula Feuer and Edward S. Akeley—39
Electron diffraction camera, Use of, as an ultraoscilloscope and suggested application to contact erosion, J. J. Lander—1128
Electron diffraction, Notes on, with the universal electron microscope, R. E. Dunaway and H. M. Barton—799 (L)
Electron diffraction study of particle size in thin Bi films deposited by evaporation in vacuum, C. T. Keogh and A. H. Weber—1077
Electron microscope, Carbon film formation and commutator brush-wear as revealed by the, Ernest F. Fullam and Robert H. Savage—654
Electron microscope examination of stainless steel and high nickel alloys, Oxide replica technique for, E. M. Mahla and N. A. Nielson—378
Electron microscope, Investigation of specimen contamination in the, James Hillier—226
Electron microscope magnification, Interferometric method for the calibration of, J. L. Farrant and A. J. Hodge—840
Electron microscope, Measurement of carbon black particles by the, and low temperature nitrogen adsorption isotherms, R. B. Anderson and P. H. Emmett—367
Electron Microscope Society of America, Proceedings of—118; E. F. Burton Memorial Meeting—1186
Electron microscope specimens, Pseudostructures in, John H. L. Watson—713
Electron microscope study of gold smoke deposits, Louis Harris, David Jeffries, and Benjamin M. Siegel—791
Electron microscope, universal, Notes on electron diffraction with the, R. E. Dunaway and H. M. Barton—799 (L)
Electron microscopes, Specimen contamination in, John H. L. Watson—110 (L)
Electron microscopy, Chromatic aberration and resolving power in, E. G. Ramberg and J. Hillier—678
Electron microscopy, Dark-field, C. E. Hall—198, 271
Electron multiplier tubes, Application of, in the measurement of x-ray beam intensities and in the determination of crystal structure, G. Papp and K. Sasvári—1182 (L)
Electron optical observation of magnetic fields, L. Marton—863 (L)
Electron optical "Schlieren" effect, L. Marton—687 (L)
Electron streams due to ions, Possible fluctuations in, J. R. Pierce—231
Electronic differential analyzer, J. S. Koehler—148
Electronic radiography and microradiography, Jean-Jacques Trillat—844
Electronic simultaneous equation solver, Edwin A. Goldberg and George W. Brown—339
Electrons, Aids to analysis of patterns obtained in the diffraction of electrons by gases, H. J. Yearian and W. M. Barss—700
Electrons, Choice of operating mode for standing wave type linear accelerators for, Elliott J. Lawton—534
Electrons, Experimental results on standing wave type linear accelerators for, Elliott J. Lawton and W. C. Hahn—642
Electrostatic field of a point charge inside a cylinder, in connection with wave-guide theory, C. J. Bouwkamp and N. G. de Bruijn—105 (errata)
Energy losses of sound waves in metals due to scattering and diffusion, W. P. Mason and H. J. McSkimin—940
Equation solver, Electronic simultaneous, Edwin A. Goldberg and George W. Brown—339
Erosion, Bridge, of electrical contacts, Part I, J. J. Lander and L. H. Germer—910
Evaporation of alloys, Method for the, Louis Harris and Benjamin M. Siegel—739
Experimental results on standing wave type linear accelerators for electrons, Elliott J. Lawton and W. C. Hahn—642

Explosives with lined cavities, Garrett Birkhoff, Duncan P. MacDougall, Emerson M. Pugh, and Sir Geoffrey Taylor—563
Extension of LaGrange's equations to electromagnetic field problems, Prescott D. Crout—1007
Extreme values, Theory of, and its implications in the study of the dielectric strength of paper capacitors, Benjamin Epstein and Hamilton Brooks—544

Flow of a perfect fluid between two plates from a circular inlet channel, E. T. Benedikt—1094 (L)
Formvar replica method, Some observations on, with a note on glass surfaces, Beatrice M. Deacon, S. G. Ellis, W. G. Cross, and R. S. Sennett—704
Fracture of liquids—John C. Fisher—1062
Fracture problems, Statistical aspects of, Benjamin Epstein —140; Franklin H. Fowler, Jr.—1092 (L)
Frequency stabilization of microwave oscillators by spectrum lines. II. Jose L. Garcia de Quevedo and William V. Smith—831
Frevel focusing x-ray powder camera, Temperature-controlled, V. Vand—852

Gains and effective areas of horn antennas, R. B. Watson and C. M. McKinney—871
Gas, adiabatic expansion of, Production of ice crystals by, Bernard Vonnegut—959 (L)
Gas, perfect, Canonical form of the equations of steady motion of a, Max M. Munk and Robert C. Prim—957
Gases, Measurements of dielectric constant and dipole moment of gases by the beat-frequency method, J. G. Jelatis—419
Gases, Method for measuring the complex dielectric constant of gases at microwave frequencies by using a resonant cavity, C. K. Jen—649
Gases, real, Effective "gamma" for isentropic expansions of, Arthur S. Iberall—997
Geiger counter x-ray diffraction goniometer, Preferred orientation determination using a, B. F. Decker, E. T. Asp, and D. Harker—388
General divergence formula, H. J. Riblet and C. B. Barker —63
Generators, thermoelectric, Efficiency of, Robert M. Papet —1180 (L)
Geometrical factors affecting the contours of x-ray spectrometer maxima. I. Factors causing asymmetry, Leroy Alexander—1068
Gold smoke deposits, Electron microscope study of, Louis Harris, David Jeffries, and Benjamin M. Siegel—791
Grain growth, Effect of recrystallized grain size on, Paul A. Beck—507 (L)
Graphite lubrication, Robert H. Savage—1
Growth of charged particles in clouds, Wulf Kunkel—1053
GR-S and Hevea, Creep, recovery, and permanent set for, S. D. Gehman—456
Gyrograms, Henry O. Fuchs—796 (L)
Gyrograms for simple harmonic systems subjected to external forces, V. Rojansky—297

Harmonic systems, Gyrograms for simple harmonic systems subjected to external forces, V. Rojansky—297
Head-on collision of a shock wave and a rarefaction wave in one dimension, H. E. Moses—383
Heat, Dissipation of, by free convection from vertical and horizontal cylinders, W. Elenbaas—1148
Heat sources, Observation on, placed at random on a surface, Gregory H. Wannier—1020
Heat transfer from a rotating disk to ambient air, Carl Wagner—837
Helical antennas, Characteristics of, radiating in the axial mode, John D. Kraus and J. Claude Williamson—87
Hevea, Creep, recovery, and permanent set for GR-S and, S. D. Gehman—456
Homing and navigational courses of automatic target-seeking devices, L. C. Yuan—1122
Homing pigeon in electromagnetic fields, C. L. Clark, R. A. Peck, Jr., and W. F. Hollander—1183 (L)
Hydrocarbons, Infra-red spectra of. II. Analysis of octane mixtures by the use of infra-red spectra obtained at low temperatures, W. H. Avery and J. R. Morrison—472 (errata)

Ice crystals, Production of, by the adiabatic expansion of gas, Bernard Vonnegut—959 (L)
Influence of atmosphere pressure on the phenomena accompanying the entry of spheres into water, David Gilbarg and Robert A. Anderson—127
Infra-red spectra of hydrocarbons. II. Analysis of octane mixtures by the use of infra-red spectra obtained at low temperatures, W. H. Avery and J. R. Morrison—472 (errata)
Interferometric method for the calibration of electron microscope magnification, J. L. Farrant and A. J. Hodge —840
Investigation of specimen contamination in the electron microscope, James Hillier—226
Ion microscope with a transverse magnetic field, Nobuji Sasaki—1050
Ionosphere, Note on the phase difference between two waves reflected from the, J. M. Kelso—590 (L)
Ionosphere reflections recorded mechanically by means of a repetition frequency converter, W. Stoffregen—487
Ions, Possible fluctuations in electron streams due to, J. R. Pierce—231
Iron, Self-diffusion in, C. Ernest Birchenall and Robert F. Mehl—217 (L)
Irradiation of biological materials by high energy Roentgen rays and cathode rays, J. G. Trump and R. J. Van de Graaff—599
Isotopes, Shipping of radio-isotopes, Karl Z. Morgan—593
Isotopic tracers, Theory of the study of transfers within a multi-compartment system using isotopic tracers, C. W. Sheppard—70

Kerr electro-optical light shutter, Use of a cavity oscillator for, A. C. Lapsley, L. B. Snoddy, and J. W. Beams—111 (L)

LaGrange's equations, Extension of, to electromagnetic field problems, Prescott D. Crout—1007
Laplace transform, Application of, in the solution of linear integral equations, Lawrence Baylor Robinson—237
Large plastic flow and the collapse of hollow cylinders, P. W. Bridgman—302
Limiting sensitivity of a microwave spectrometer, C. H. Townes and S. Geschwind—795 (L)
Linear integral equations, Application of the Laplace transform in the solution of, Lawrence Baylor Robinson—237
Linear networks, damped, Transient response of, with particular regard to wideband amplifiers, W. C. Elmore—55
Linear resonant systems, Response of, to excitation of a frequency varying linearly with time, Gunnar Hok—242; erratum—623
Linear structures at sonic frequencies, Method for the absolute measurement of dynamic properties of, W. James Lyons and Irven B. Prettyman—473
Liquids, Fracture of, John C. Fisher—1066
Liquids, Measurement by radioactive tracers of diffusion in, Andrew Gemant—1160
Liquids, Universal curves for dielectric-filled wave guides and microwave dielectric measurement methods for, W. H. Surber, Jr.—514
Lubrication, Graphite, Robert H. Savage—1

Magnetic fields, Electron optical observation of, L. Marton —863 (L)
Magnetic properties of ordered nickel-manganese alloys, Robert I. Jaffee—867
Magnetization in perpendicularly superposed direct and alternating fields, F. J. Beck and J. M. Kelly—551
Magnetron anode blocks, Resonant modes of the rising sun and other unstrapped magnetron anode blocks, Norman M. Kroll and Willis E. Lamb, Jr.—166
Magnetron resonator system, E. C. Okress—338 (erratum)
Magnetron, Rising sun, S. Millman and A. T. Nordsieck —156
Magnetrons, Rising sun, with large numbers of cavities, A. V. Hollenberg, N. Kroll, and S. Millman—624
Magnitude and character of errors produced by shape factors in Stokes' law estimates of particle radius, Wulf B. Kunkel—1056
Manganese, Magnetic properties of ordered nickel-manganese alloys, Robert I. Jaffee—867
Manganese, Twinning in tetragonal alloys of copper and manganese, Francis T. Worrell—929; erratum—1154
Mass emissivity of powder gases in solid fuel rockets, S. S. Penner—278
Measured impedances of helical beam antennas, Otto J. Glasser and John D. Kraus—193
Measurement of carbon black particles by the electron microscope and low temperature nitrogen adsorption isotherms, R. B. Anderson and P. H. Emmett—367
Measurement of cavity impedance, W. W. Hansen and R. F. Post—1059
Measurement by radioactive tracers of diffusion in liquids, Andrew Gemant—1160
Measurement of stress by means of x-rays, D. E. Thomas —190
Measurements of dielectric constant and dipole moment of gases by the beat-frequency method, J. G. Jelatis—419
Metal chips, Theory of formation of, Väinö Piispanen—876
Metal powders, Alloying of, by diffusion, Sidney Weinbaum—897
Metallurgy, Contribution of modern physics to, Frederick Seitz—973
Metals, Energy losses of sound waves in metals due to scattering and diffusion, W. P. Mason and H. J. McSkimin—940
Metals, liquid, Bidwell's intercept relation and the thermal conductivity of, R. W. Powell—995
Metals, polycrystalline, Scattering of ultrasonic radiation in, W. Roth—901
Metals, sheet, Technique for quantitative determination of texture of, John T. Norton—1176
Meteorite, Probability that a meteorite will hit or penetrate a body situated in the vicinity of the earth, G. Grimminger—947
Meteors, Theory of the radio detection of, Laurence A. Manning—689
Method for the absolute measurement of dynamic properties of linear structures at sonic frequencies, W. James Lyons and Irven B. Prettyman—473
Method of determining the angle of arrival, A. W. Straiton, W. E. Gordon, and A. H. LaGrone—524
Method for the evaporation of alloys, Louis Harris and Benjamin M. Siegel—739
Method for measuring the complex dielectric constant of gases at microwave frequencies by using a resonant cavity, C. K. Jen—649
Methods for measuring dynamic mechanical properties of rubber-like materials, A. W. Nolle—753
Microflash unit for ballistic photography, W. W. McCormick, L. Madansky, and A. F. Fairbanks—221
Microradiography, Electronic radiography and, Jean-Jacques Trillat—844
Microscope, Ion, with a transverse magnetic field, Nobuji Sasaki—1050
Microwave oscillators, Frequency stabilization of, by spectrum lines. II. Jose L. Garcia de Quevedo and William V. Smith—831
Microwave spectrometer, Limiting sensitivity of a, C. H. Townes and S. Geschwind—795 (L)
Microwave spectroscopy, Minimum detectable absorption in, and an analysis of the Stark modulation method, W. D. Hershberger—411
Microwaves, non-standard propagation of, Effect of ground constants on the characteristic values of the normal modes in, C. L. Pekeris—102
Minimum detectable absorption in microwave spectroscopy and an analysis of the Stark modulation method, W. D. Hershberger—411
Mixing properties of non-linear condensers, A. van der Ziel—999

Networks, Transmission losses in $2n$-terminal networks, Vitold Belevitch—636

Neutrons, Transmission of monoenergetic slow neutrons through solid solutions and mechanical mixtures of TiC and WC, S. S. Sidhu—639
New method of measuring diffusion coefficient in solids with radioactive tracers, G. C. Kuczynski—308 (L)
Nickel-manganese alloys, ordered, Magnetic properties of, Robert I. Jaffee—867
Nitrocellulose, Visco-elastic behavior of a highly plasticized nitrocellulose in compression under constant load, George J. Doyle and Richard M. Badger—373
Nitrogen, processed atmospheric, Anomalous physical properties of, Clarke C. Minter—217 (L)
Note on the phase difference between two waves reflected from the ionosphere, J. M. Kelso—590 (L)
Note on reflection from dielectric structures in wave guide, J. Shmoys—797 (L)
Notes on electron diffraction with the universal electron microscope, R. E. Dunaway and H. M. Barton—799 (L)
Nucleation, J. C. Fisher, J. H. Hollomon, and D. Turnbull —775

Observation of corrosion cracking without stress, W. D. Robertson and H. H. Uhlig—864 (L)
Observation on heat sources placed at random on a surface, Gregory H. Wannier—1020
Observations on arc discharges at low pressures, M. J. Kofoid—399
Observations on the Formvar replica method, with a note on glass surfaces, Beatrice M. Deacon, S. G. Ellis, W. G. Cross, and R. S. Sennett—704
One-dimensional theory of steady compressible fluid flow in ducts with friction and heat addition, Bruce L. Hicks, Donald J. Montgomery, and Robert H. Wasserman—523 (erratum)
Oscillations, Self-excited mechanical, N. Minorsky—332
Oxide replica technique for the electron microscope examination of stainless steel and high nickel alloys, E. M. Mahla and N. A. Nielson—378

Palletron, a new electron resonator and its proposed application to the generation of potentials in the million-volt range, A. M. Skellett—187
Paper capacitors, Theory of extreme values and its implications in the study of the dielectric strength of, Benjamin Epstein and Hamilton Brooks—544
Particle radius, Magnitude and character of errors produced by shape factors in Stokes' law estimates of, Wulf B. Kunkel—1056
Particle size in thin Bi films deposited by evaporation in vacuum, Electron diffraction study of, C. T. Keogh and A. H. Weber—1077
Photography, x-ray, Divergent beam, with standard diffraction equipment, A. H. Geisler, J. K. Hill, and J. B. Newkirk—1041
Physical basis of bird navigation, Joseph Slepian—306 (L)
Physical limitations of omnidirectional antennas—L. J. Chu—1163
Physics, modern, Contribution of, to metallurgy, Frederick Seitz—973
Physics in 1947, Philip Morrison—311
Pigeon, Homing, in electromagnetic fields, C. L. Clark, R. A. Peck, Jr., and W. F. Hollander—1183 (L)
Pigments, organic, Transformations in, F. A. Hamm and Earl Van Norman—1097
Pile bombardment, Effects of, on uncured elastomers, W. L. Davidson and I. G. Geib—427
Plastic deformation, theory of, Theory of plastic flow *versus*, W. Prager—540
Plastic flow, creep, and stress relaxation. Part IV. Anomalous flow as an order-disorder transition, Charles Mack —1082
Plastic flow, Large, and the collapse of hollow cylinders, P. W. Bridgman—302
Plastic flow, Theory of, *versus* theory of plastic deformation, W. Prager—540
Plastic flow of thick-walled tubes with large strains, C. W. MacGregor, L. F. Coffin, Jr. and J. C. Fisher—291
Plate containing an overlapped circular hole, Stresses in a, Chih-Bing Ling—405
Pole figures, Analytical discussion of the construction of, John K. Wood—784
Possibility of Hg type arcs with hot refractory cathodes, Jerome Rothstein—1181 (L)
Possible fluctuations in electron streams due to ions, J. R. Pierce—231
Powder gases, Mass emissivity of, in solid fuel rockets, S. S. Penner—278
Prebunching: a method controlling synchrotron radial oscillation amplitudes, D. C. dePackh and M. Birnbaum —795 (L)
Preferred orientation determination using a Geiger counter x-ray diffraction goniometer, B. F. Decker, E. T. Asp, and D. Harker—388
Probability that a meteorite will hit or penetrate a body situated in the vicinity of the earth, G. Grimminger—947
Proceedings of the Electron Microscope Society of America —118, 1186
Production of ice crystals by the adiabatic expansion of gas, Bernard Vonnegut—959 (L)
Properties of a long antenna, Erik Hallen—1140
Pseudostructures in electron microscope specimens, John H. L. Watson—713

Qualitative experimental verification of the change of burning rate of rocket powders with radiation path length, S. S. Penner—511
Quanta, Absorption of incident quanta by atoms as defined by the mass photoelectric absorption coefficient and the mass scattering coefficient, John A. Victoreen—855
Quantitative determination of texture of sheet metals. A technique for, John T. Norton—1176
Quantitative x-ray investigations on the crystallinity of cellulose fibers. A background analysis, P. H. Hermans and A. Weidinger—491

Radar antennae, Solution of the problem of rapid scanning for, R. F. Rinehart—860
Radiation patterns of dielectric rods, R. B. Watson and C. W. Horton—661, 836

Radiation, ultrasonic, Scattering of, in polycrystalline metals, W. Roth—901
Radio detection of meteors, Theory of, Laurence A. Manning—689
Radioactive tracers, New method of measuring diffusion coefficient in solids with, G. C. Kuczynski—308 (L)
Radiography, Electronic, and microradiography, Jean-Jacques Trillat—844
Range-finder testing laboratory, Irvine C. Gardner—721, 729
Recent developments in analysis of the mechanisms of positive and negative coronas in air, Leonard B. Loeb —882
Relaxation, Creep and, II, B. Gross—257
Remarks on "The efficiency of thermoelectric generators," Robert M. Papet—1180 (L)
Remarks on "The physical basis of bird navigation," Leverett Davis, Jr.—307 (L)
Remarks on "A preliminary study of a physical basis of bird navigation," Russell H. Varian—306 (L)
Remarks concerning a proposed method for testing the brittleness of elastomers, C. H. Klute—1093 (L)
Remarks on some recently developed devices for summing Fourier series for crystal structure analysis, C. L. Christ —225 (erratum)
Resonant cavity linear accelerator, A. B. Cullen, Jr. and J. H. Greig—47
Resonant modes of the rising sun and other unstrapped magnetron anode blocks, Norman M. Kroll and Willis E. Lamb, Jr.—166
Resonator, Palletron, a new electron resonator and its proposed application to the generation of potentials in the million-volt range, A. M. Skellett—187
Response of linear resonant systems to excitation of a frequency varying linearly with time, Gunnar Hok—242; erratum—623
Rising sun magnetron, S. Millman and A. T. Nordsieck— 156
Rising sun magnetrons with large numbers of cavities, A. V. Hollenberg, N. Kroll, and S. Millman—624
Rising sun and other unstrapped magnetron anode blocks, Resonant modes of the, Norman M. Kroll and Willis E. Lamb, Jr.—166
Rocket powders, Qualitative experimental verification of the change of burning rate of rocket powders with radiation path length, S. S. Penner—511
Rocket propellants, solid fuel, Effect of radiation on the rate of burning of, S. S. Penner—392
Rockets, Mass emissivity of powder gases in solid fuel rockets, S. S. Penner—278
Roentgen rays, Biological and photo-chemical effects of high energy, electrostatically produced Roentgen rays and cathode rays, Cecil G. Dunn, William L. Campbell, Harvey Fram, and Ardelia Hutchins—605
Roentgen rays and cathode rays, high energy, Irradiation of biological materials by, J. G. Trump and R. J. Van de Graaff—599
Rubber-like materials, Method for measuring dynamic mechanical properties of, A. W. Nolle—753
Scanning, rapid, for radar antennae, Solution of the problem of, R. F. Rinehart—860
Scattering of electromagnetic radiation by a thin circular ring in a circular wave guide, Paula Feuer and Edward S. Akeley—39
Scattering of ultrasonic radiation in polycrystalline metals, W. Roth—901
"Schlieren" effect, Electron optical, L. Marton—687 (L)
Selenium, crystalline, Temperature coefficient of electrical resistivity for, containing various percentages of bromine, Wayne E. Blackburn—51
Self-diffusion in iron, C. Ernest Birchenall and Robert F. Mehl—217 (L)
Self-excited mechanical oscillations, N. Minorsky—332
Shipping of radio-isotopes, Karl Z. Morgan—593
Shock wave, Head-on collision of a, and a rarefaction wave in one dimension, H. E. Moses—383
Shock waves, Decay of, B. Cassen and J. Stanton—803
Shock waves, spherical, in air, Attenuation of, Richard G. Stoner and Walker Bleakney—670; erratum—1129
Silver chloride, rolled, Tensile properties of, B. M. Axilrod and J. J. Lamb—213
Simple procedure for the making of alignment charts, W. L. Bond—83
Simple relations for calculating certain transient responses, W. J. Cunningham—251
Slots, Theory of, in rectangular wave guides, A. F. Stevenson—24
Slow waves in cylindrical guides, A. A. Oliner—109 (L)
Solution of the problem of rapid scanning for radar antennae, R. F. Rinehart—860
Sound waves in metals, Energy losses of, due to scattering and diffusion, W. P. Mason and H. J. McSkimin—940
Specimen contamination in electron microscopes, John H. L. Watson—110 (L)
Spectral emissivity and electron emission constants of thoria cathodes, T. E. Hanley—583
Spectrum lines, Frequency stabilization of microwave oscillators by. II. Jose L. Garcia de Quevedo and William V. Smith—831
Spheres, Influence of atmosphere pressure on the phenomena accompanying the entry of spheres into water, David Gilbarg and Robert A. Anderson—127
Spheres, steel, entering water vertically, Drag coefficients of, Albert May and Jean C. Woodhull—1109
Spurious signals caused by noise in triggered circuits, David Middleton—817
Stark modulation method, Minimum detectable absorption in microwave spectroscopy and an analysis of the, W. D. Hershberger—411
Statistical aspects of fracture problems, Benjamin Epstein —140; Franklin H. Fowler, Jr.—1092 (L)
Statistical factors affecting the intensity of x-rays diffracted by crystalline powders, Leroy Alexander, Harold P. Klug, and Elizabeth Kummer—742
Stress, Measurement of, by means of x-rays, D. E. Thomas —190
Stress relaxation, Plastic flow, creep, and. Part IV. Anomalous flow as an order-disorder transition, Charles Mack —1082

Stresses in a plate containing an overlapped circular hole, Chih-Bing Ling—405
Stresses in a plate containing two circular holes, Chih-Bing Ling—77
Structure of cellulose acetate molecules in acetone solution, Seymour J. Singer and Herman Mark—97
Study on anaeroid capsules, Eugene W. Pike and Norman E. Gibbs—106
Surface currents on a conducting sphere excited by a dipole, C. H. Papas and Ronold King—808
Surface waves from an underwater explosion, J. G. Kirkwood and R. J. Seeger—346
Synchrotron, Prebunching: a method controlling synchrotron radial oscillation amplitudes, D. C. dePackh and M. Birnbaum—795 (L)

Target-seeking devices, automatic, Homing and navigational courses of, L. C. Yuan—1122
Technique for quantitative determination of texture of sheet metals, John T. Norton—1176
Temperature coefficient of electrical resistivity for crystalline selenium containing various percentages of bromine, Wayne E. Blackburn—51
Temperature-controlled Frevel focusing x-ray powder camera, V. Vand—852
Temperature development, Calculation of the, in a contact heated in the contact surface, and application to the problem of the temperature rise in a sliding contact, Ragnar Holm—361; W. J. Oosterkamp—1180 (L)
Temperature gradients for convection in well models, Mary Jane Auld—218 (L)
Tensile properties of rolled silver chloride, B. M. Axilrod and J. J. Lamb—213
Testing of range finders, Irvine C. Gardner—729
Theoretical criterion for streamer advance in an electrical field, Leonard B. Loeb and Robert A. Wijsman—797 (L)
Theory of biconical antennas, C. T. Tai—1155
Theory of commercial yarn testing, Charles J. Geyer, Jr., C. H. Reichardt, and George Halsey—464
Theory of extreme values and its implications in the study of the dielectric strength of paper capacitors, Benjamin Epstein and Hamilton Brooks—544
Theory of formation of metal chips, Väinö Piispanen—876
Theory of plastic flow *versus* theory of plastic deformation, W. Prager—540
Theory of the positive column in an annular discharge tube, Jaroslav Pachner—1072
Theory of the radio detection of meteors, Laurence A. Manning—689
Theory of slots in rectangular wave guides, A. F. Stevenson—24
Theory of the study of transfers within a multi-compartment system using isotopic tracers, C. W. Sheppard—70
Thermal conductivity of liquid metals, Bidwell's intercept relation and the, R. W. Powell—995
Thermodynamics of a strained elastomer. I. General analysis, M. Mooney—434; II. Compressibility, L. E. Copeland—445; III. The thermal coefficient of modulus and the statistical theory of elasticity, L. E. Copeland and M. Mooney—450
Thoria cathodes, Spectral emissivity and electron emission constants of, T. E. Hanley—583
Transformations in organic pigments, F. A. Hamm and Earl Van Norman—1097
Transient response of damped linear networks with particular regard to wideband amplifiers, W. C. Elmore—55
Transmission losses in 2*n*-terminal networks, Vitold Belevitch—636
Transmission of monoenergetic slow neutrons through solid solutions and mechanical mixtures of TiC and WC, S. S. Sidhu—639
Transmission properties of materials in the millimeter wave region, E. Wantuch, J. H. Rohrbaugh, J. P. Cooley, J. H. Greig, and J. Shmoys—1092 (L)
Tubes, thick-walled, Plastic flow of, with large strains, C. W. MacGregor, L. F. Coffin, Jr., and J. C. Fisher—291
Twinning in tetragonal alloys of copper and manganese, Francis T. Worrell—929; erratum—1154

Ultraoscilloscope, Use of an electron diffraction camera as an ultraoscilloscope and suggested application to contact erosion, J. J Lander—1128
Underwater explosion, Surface waves from an, J. G. Kirkwood and R. J. Seeger—346
Universal curves for dielectric-filled wave guides and microwave dielectric measurement methods for liquids, W. H. Surber, Jr.—514
Use of a cavity oscillator for a Kerr electro-optical light shutter, A. C. Lapsley, L. B. Snoddy, and J. W. Beams—111 (L)
Use of an electron diffraction camera as an ultraoscilloscope and suggested application to contact erosion, J. J. Lander—1128

Vacuum, Apparatus for weighing in, G. W. Monk—485
Velocity of the anode spark in copper sulfate solutions under application of impulsive potential, Hugh F. Henry—988
Visco-elastic behavior of a highly plasticized nitrocellulose in compression under constant load, George J. Doyle and Richard M. Badger—373
Viscous slip along grain boundaries and diffusion of zinc in alpha-brass, T'ing-Sui Kê—285

Wave guide, circular, Scattering of electromagnetic radiation by a thin circular ring in a, Paula Feuer and Edward S. Akeley—39
Wave guide, Note on reflection from dielectric structures in, J. Shmoys—797 (L)
Wave-guide theory, in connection with, Electrostatic field of a point charge inside a cylinder, C. J. Bouwkamp and N. G. de Bruijn—105 (errata)
Wave guides for slow waves, L. Brillouin—1023
Wave guides, Theory of slots in rectangular wave guides, A. F. Stevenson—24
Wave guides, Universal curves for dielectric-filled wave guides and microwave dielectric measurement methods for liquids, W. H. Surber, Jr.—514
Waves, shock, Decay of, B. Cassen and J. Stanton—803

Weissenberg photographic intensities, Alignment chart giving the polarization correction of equi-inclination Weissenberg photographic intensities, W. L. Bond—82

X-ray beam intensities, Application of electron multiplier tubes in the measurement of, and in the determination of crystal structure, G. Papp and K. Sasvári—1182 (L)

X-ray diffraction goniometer, Preferred orientation determination using a Geiger counter x-ray diffraction goniometer, B. F. Decker, E. T. Asp, and D. Harker—388

X-ray diffraction patterns, Convenient methods for obtaining d/n values from, C. B. Stewart and E. S. Lutton—507 (L)

X-ray investigations, Quantitative, on the crystallinity of cellulose fibers. A background analysis, P. H. Hermans and A. Weidinger—491

X-ray photography, Divergent beam, with standard diffraction equipment, A. H. Geisler, J. K. Hill, and J. B. Newkirk—1041

X-ray powder camera, Temperature-controlled Frevel focusing, V. Vand—852

X-ray spectrometer maxima, Geometrical factors affecting the contours of. I. Factors causing asymmetry, Leroy Alexander—1068

X-rays diffracted by crystalline powders, Statistical factors affecting the intensity of, Leroy Alexander, Harold P. Klug, and Elizabeth Kummer—742

X-rays, Measurement of stress by means of, D. E. Thomas —190

Yarn testing, commercial, Theory of, Charles J. Geyer, Jr., C. H. Reichardt, and George Halsey—464

Young's modulus and strain coefficient of resistivity of some bismuth rich alloys, G. C. Kuczynski and J. T. Norton —683

Zinc, Viscous slip along grain boundaries and diffusion of, in alpha-brass, T'ing-Sui Kê—285